



PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Kasid et al.

Application No. 09/930,283

Filed: August 16, 2001

For: LIPOSOMES CONTAINING
OLIGONUCLEOTIDES

Art Unit: 1635

Examiner: T. Gibbs

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PENDING CLAIMS UPON ENTRY OF AMENDMENTS
MADE IN RESPONSE TO OFFICE ACTION DATED OCTOBER 23, 2002

1. A composition comprising a cationic liposome containing a cationic lipid, phosphatidylcholine and cholesterol.
2. A composition of claim 1 wherein the liposome contains an antisense oligonucleotide sequence.
3. A composition of claim 2 wherein the antisense sequence is a raf oligodeoxynucleotide.
4. A composition of claim 3 wherein the antisense sequence is of the formula 5' -GTGCTCCATTGATGC- 3' (SEQ ID NO: 1) wherein only the terminal sequences are phosphorothioated.
5. A composition of claim 1 in a pharmaceutically acceptable carrier.
6. A composition of claim 4 in a pharmaceutically acceptable carrier.
7. A composition of claim 1 wherein the pharmaceutically acceptable carrier is isotonic.
8. A composition of claim 4 wherein the pharmaceutically acceptable carrier is buffered, isotonic solution.
9. A method of radiosensitizing tumor tissue by administration of a radiosensitizing effective amount of at least one antisense oligonucleotide of no more than 40 bases containing the sequence 5' -GTGCTCCATTGATGC- 3' (SEQ ID NO: 1).

10. A method of claim 9 wherein the oligonucleotide is phosphorothioated at only the end nucleotides.

12. A method of claim 9 wherein the oligonucleotide is administered intravenously.

13. A method of claim 9 wherein the oligonucleotide is administered directly to the target tissue.

14. A method of claim 9 wherein the oligonucleotide is administered into the arterial supply to the target tissue.

15. A method of claim 9 wherein the oligonucleotide is of the formula 5' - GTGCTCCATTGATGC- 3' (SEQ ID NO: 1) and only the end bases are phosphorothioated.

16. A composition of matter comprising liposomes containing the sequence 5' -GTGCTCCATTGATGC- 3' (SEQ ID NO: 1) in a pharmaceutically acceptable carrier.

17. A composition of claim 1 wherein the cationic lipid is dimethyldioctadecyl ammonium bromide.

18. An improved method of treating a patient having cancerous tumor tissue comprising the administration of therapeutic radiation wherein the improvement comprises sensitizing said cancerous tumor tissue by the administration of radiosensitizing composition comprising a cationic liposome, phosphatidylcholine and cholesterol which cationic liposome has encapsulated therein an antisense oligonucleotide of no more than 40 bases that specifically binds to an oncogene nucleic acid sequence expressed by said tumor tissue.

19. The method of claim 18, wherein the oncogene is selected from the group consisting of ras, raf, cot, mos and myc.

20. The method of claim 19, wherein the oncogene is raf-1.

21. The method of claim 18, wherein said tumor tissue is a solid tumor.

22. The method of claim 18, wherein said tumor is a laryngeal squamous carcinoma.

23. The method of claim 18, wherein radiation and said cationic liposomes are administered together.

24. The method of claim 18, wherein said radiation and cationic liposomes are administered separately.

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25. The method of claim 24, wherein said cationic liposome is administered prior to radiation.

26. A method of claim 18 wherein the oligonucleotide is administered directly to the target tissue.

27. A method of claim 18 wherein the oligonucleotide is administered into the arterial supply to the target tissue.